|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Pendeen SCIENCE SCOPE, CONTENT and SEQUENCING Year A UPPER KEY STAGE 2** | | | | | | | |
| Year Group:  6 | Half term: Aut 1 | SCOPE: Animals including humans | CONTENT / INTENT: [LINK TO NC Learning OBJECTIVES](https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study#upper-key-stage-2--years-5-and-6)  I know how to identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood  I know how to recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function  I know how to describe the ways in which nutrients and water are transported within animals, including humans | | | | |
| Prior Learning | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 | Future Learning |
| **EYFS –** Pupils may be able to locate where the heart is in the body, and that blood moves around the body.  **Yr. 1 – Animals including Humans –** Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets).  **Yr. 1 – Animals including Humans –** Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.  **Yr. 2 – Animals including Humans –** Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).  **Yr. 2 – Animals including Humans –** Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.  **Yr. 3 – Animals including Humans -** Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.  **Yr. 3 – Animals including Humans –** Identify that humans and some other animals have skeletons and muscles for support, protection and movement.  **Yr. 4 – Animals including Humans -** Describe the simple functions of the basic parts of the digestive system in humans. | Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. | | Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. | | Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function | Describe the ways in which nutrients and water are transported within animals, including humans | To build upon previous learning through the KS3 NC subject content – Biology |
| Can I name and locate the main structures of the heart?  Can I describe the simple functions of the heart, veins and arteries?  Can I describe the function of the blood? | | Can I explain the effects of overeating on the body?  Can I identify food groups that should not make up a large part of my diet?  Can I list some of the food groups I need to eat to maintain my health? | | Can I describe the effects of exercise on the body?  Can I define the difference between a drug and medicine?  Can I analyse and comment on individual lifestyles? | Can I describe in simple terms, the process of osmosis?  Can I say that nutrients move into all parts of the body by osmosis?  Can I describe the function of the kidneys in removing water from the body? |
| See previous year groups vocabulary box in this document. | **Vocabulary:** Heart, Ventricle, Atrium, Vein, Artery, Blood, Circulatory, Muscle, Cardiac, Vessel, Diet, Exercise, Calorie, Fat, Carbohydrate, Protein, Medicine, Drug, Lifestyle, Medicine, Drug, Lifestyle, Cardiovascular, Resistance Training. | | | | | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Pendeen SCIENCE SCOPE, CONTENT and SEQUENCING Year A UPPER KEY STAGE 2** | | | | | | | |
| Year Group:  6 | Half term: Aut 2 | SCOPE: Light | CONTENT / INTENT: [LINK TO NC Learning OBJECTIVES](https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study#upper-key-stage-2--years-5-and-6)  I know how to recognise that light appears to travel in straight lines  I know how to use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye  I know how to explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes  I know how to use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them | | | | |
| Prior Learning | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 | Future Learning |
| **EYFS –** pupils will learn about change, and they may know that nights are longer in the winter, and days are longer in the summer.  **Yr. 1 – Seasonal Change –** Observe changes across the four seasons.  **Yr. 1 – Seasonal Change –** Observe and describe weather associated with the seasons and how day length varies.  **Yr. 3 - Light -** Recognise that they need light in order to see things and that dark is the absence of light.  **Yr. 3 - Light -** Notice that light is reflected from surfaces.  **Yr. 3 - Light -** Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.  **Yr. 3 - Light -** Recognise that shadows are formed when the light from a light source is blocked by an opaque object.  **Yr. 3 - Light -** Find patterns in the way that the size of shadows change. | Recognise that light appears to travel in straight lines. | Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. | Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. | | Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. | | To build upon previous learning through the KS3 NC subject content – Physics |
| Can I provide evidence that light travels in straight lines?  Can I classify objects as luminous or non-luminous?  Can I describe the path light takes so we can see?  Can I explain why shadows have the same shape as the objects that cast them? | Can I provide evidence that light travels in straight lines?  Can I classify objects as luminous or non-luminous?  Can I describe the path light takes so we can see?  Can I explain why shadows have the same shape as the objects that cast them? | Can I provide evidence that light travels in straight lines?  Can I classify objects as luminous or non-luminous?  Can I describe the path light takes so we can see?  Can I explain why shadows have the same shape as the objects that cast them? | | Can I provide evidence that light travels in straight lines?  Can I classify objects as luminous or non-luminous?  Can I describe the path light takes so we can see?  Can I explain why shadows have the same shape as the objects that cast them? | |
| See previous year groups vocabulary box in this document. | **Vocabulary:** Light, Reflection, Visible, Ultraviolet, Lens, Convex, Concave, Diverge, Converge, Ray | | | | | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Pendeen SCIENCE SCOPE, CONTENT and SEQUENCING Year A UPPER KEY STAGE 2** | | | | | | | |
| Year Group:  6 | Half term: Spr 2 | SCOPE: | CONTENT / INTENT: [LINK TO NC Learning OBJECTIVES](https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study#upper-key-stage-2--years-5-and-6)  I know how to recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago  I know how to recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents  I know how to identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution | | | | |
| Prior Learning | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 | Future Learning |
| **EYFS and KS1 –** No requirement to learn adaption at these stages but pupils may know that cacti grow in dry regions and giraffes have long necks so it can reach the highest leaves**.**  **Yr. 3 – Plants -** Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.  **Yr. 3 – Rocks -** Describe in simple terms how fossils are formed when things that have lived are trapped within rock.  **Yr. 4 – Living Things and their Habitats -** Recognise that environments can change and that this can sometimes pose dangers to living things.  **Yr. 5 – Properties and Changes of Materials -** Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, **conductivity (electrical and thermal),** and response to magnets.  **Yr. 5 – Living Things and their Habitats -** Describe the life process of reproduction in some plants and animals | Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. | | Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. | | Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. | | To build upon previous learning through the KS3 NC subject content – Biology |
| Can I explain why animals adapt to their environment?  Can I give some examples of adaptions and how they benefit the species?  Can I say why adaptions can lead to evolution? | | Can I say that species produce offspring that are the same as the parents?  Can I explain why offspring are different from their parents?  Can I explain why offspring are different from each other? | | Can I describe the mechanism that results in evolution of species?  Can I identify some things that the fossil record can tell us about extinct species? | |
| See previous year groups vocabulary box in this document. | **Vocabulary:** Adaption, Characteristic, Favourable, Survival, Evolution, Inherited, Camouflage, Inheritance, Variation, Characteristic, Offspring, Parent, Heredity, Inheritance, Variation, Characteristic, Offspring, Parent, Heredity, Evolution, Fossil, Advantage, Extinction. | | | | | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Pendeen SCIENCE SCOPE, CONTENT and SEQUENCING Year A UPPER KEY STAGE 2** | | | | | | | |
| Year Group:  6 | Half term: Sum 1 | SCOPE: Electricity | CONTENT / INTENT: [LINK TO NC Learning OBJECTIVES](https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study#upper-key-stage-2--years-5-and-6)  I know how to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit  I know how to compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches  I know how to use recognised symbols when representing a simple circuit in a diagram | | | | |
| Prior Learning | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 | Future Learning |
| **Yr. 4 – Electricity -** Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.  **-** Identify whether a lamp will light in a simple series circuit, based on whether the lamp is part of a complete loop with a battery.  **-** Recognise that a switch opens and closes a circuit and associate this with whether a lamp lights in a simple series circuit. | Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. | | Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. | | Use recognised symbols when representing a simple circuit in a diagram. | | To build upon previous learning through the KS3 NC subject content – Physics |
| Can I link the way components work to the number of cells in the circuit?  Can I draw circuit diagrams from circuits I build?  Can I build circuit based on circuit diagrams?  Can I explain how a switch works? | | Can I link the way components work to the number of cells in the circuit?  Can I draw circuit diagrams from circuits I build?  Can I build circuit based on circuit diagrams?  Can I explain how a switch works? | | Can I link the way components work to the number of cells in the circuit?  Can I draw circuit diagrams from circuits I build?  Can I build circuit based on circuit diagrams?  Can I explain how a switch works? | |
| See previous year groups vocabulary box in this document. | **Vocabulary:** Component, Circuit, Loudness, Switch Brightness, Buzzer, Cell, Battery, Crocodile Clip, Voltage, Current. | | | | | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Pendeen SCIENCE SCOPE, CONTENT and SEQUENCING Year A UPPER KEY STAGE 2** | | | | | | | |
| Year Group:  6 | Half term: Sum 1 | SCOPE: Living things and their habitats | CONTENT / INTENT: [LINK TO NC Learning OBJECTIVES](https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study#upper-key-stage-2--years-5-and-6)  I know how to describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals  I know how to give reasons for classifying plants and animals based on specific characteristics | | | | |
| Prior Learning | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 | Future Learning |
| **EYFS and KS1 –** No requirement to learn about microorganisms at this stage, but pupils may know about the flu and measles, and that food can go off if kept until past its use by date.  No requirement to learn classification at these stages but pupils may know that all birds have feathers for example and will be able to name some animals.  **Yr. 3 – Rocks -** Describe in simple terms how fossils are formed when things that have lived are trapped within rock.  **Yr. 4 - Living Things and their Habitats** - Recognise that living things can be grouped in a variety of ways.  - Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.  **Yr. 5 – Living Things and their Habitats -** Describe the life process of reproduction in some plants and animals. | Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. | | | Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. | | | To build upon previous learning through the KS3 NC subject content – Biology |
| Can I describe the groups of organisms?  Can I describe some of the characteristics of microorganisms?  Can I state some differences and similarities between microorganisms? | | | 1. Can I say that organisms are classified into broad groups and that these groups can be broken down further? 2. Can I name some of these groups?   Can I classify organisms based on common characteristics? | | |
| See previous year groups vocabulary box in this document. | **Vocabulary:** Bacteria, Fungi, Algae, Virus, Protozoa, Microorganism, Microbe, Flagellum, Germ, Classification, Kingdom, Species, Taxonomy, Animal, Plant, Mammal. | | | | | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Pendeen SCIENCE SCOPE, CONTENT and SEQUENCING Year A UPPER KEY STAGE 2** | | | | | | | |
| Year Group:  5 | Half term: Sum 2 | SCOPE: Working Scientifically | CONTENT / INTENT: [LINK TO NC Learning OBJECTIVES](https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study#upper-key-stage-2--years-5-and-6)  During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:  planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary  taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate  recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs  using test results to make predictions to set up further comparative and fair tests  reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations  identifying scientific evidence that has been used to support or refute ideas or arguments | | | | |
| Prior Learning | Lesson 1 | Lesson 2 | Lesson 3 | Lesson 4 | Lesson 5 | Lesson 6 | Future Learning |
| Year 3 and 4 programme of study content (working Scientifically):  asking relevant questions and using different types of scientific enquiries to answer them  setting up simple practical enquiries, comparative and fair tests  making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers  gathering, recording, classifying and presenting data in a variety of ways to help in answering questions  recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables  reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions  using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions  identifying differences, similarities or changes related to simple scientific ideas and processes | Child led  plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary | Child led  take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate | Child led  take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate | Child led  record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs | Child led  using test results to make predictions to set up further comparative and fair tests | Child led  reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations | To build upon previous knowledge linked to KS3 objectives across the three disciplines. Pupils will develop:  scientific attitudes  Experimental skills and investigations  Analysis and evaluation  Measurment |
| I know the risks of doing an experiment  I can write a method  I can identify the equipment I need  I can make and explain predictions  I can write questions from variables  I know variables. | I can carry out an experiment/  observation  I know what a fair test is  I can record with an appropriate method  I can take repeat data when appropriate | I can carry out an experiment/  observation  I know what a fair test is  I can record with an appropriate method  I can take repeat data when appropriate  I know the type of data to gather | I can spot patterns in my results  I can draw different types of graphs  I can draw my own results table  I can record my results in various ways  I know the type of data to gather | I can design my own experiment  I can ask other questions related to my experiment  I can improve methods  I can suggest reasons for anomalies  I can discuss if my results were valid | I can spot patterns in my results  I can draw different types of graphs  I can draw my own results table  I can record my results in various ways  I know the type of data to gather |
| See previous year groups vocabulary box in this document. | **Vocabulary:** Data, record, evidence, variable, Independent variable, Dependent variable, Control variable, prediction, Hypothesis, Equipment, Method, Risks, Fair Test, Comparative Test, Observation, Pattern, Conclusion, Anomalies, invalid, valid, results | | | | | | |